Knowledge Acquisition Report
NCI Drug Development Model - IDB

Session Date: January 31, 2002

Session Topic: Task Hierarchies for Investigational Drug Branch Drug Development Actors

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Type of Session

_____ Interview _____ Task Analysis _____ Scenario Analysis
_____ Concept Analysis _____ Observation _____ Structured Interview
__**X**__ Other: Role and Task Hierarchy Analysis

Initial Session: NA

Information Sources:

Previous Knowledge Acquisition Efforts with:
Drug Monitors
Clinical Research Specialists

Report Summary

This report represents the initial steps in building a model of cancer drug development. This report focuses on the individuals (business actors) primarily with the early development of cancer treatment drugs at the National Cancer Institute. The report contains task hierarchies for these business actors. The report concludes with a brief description of the next steps in Knowledge Acquisition for the project. The information in this report is subject to update as additional knowledge is gathered during the project.

Overview of the Investigational Drug Branch

The Investigational Drug Branch (IDB) implements and monitors a comprehensive cancer therapy clinical contract program. The program is designed to provide highly specific and immediate clinical trials of anti-cancer drugs that have demonstrated high activity in animals in the pre-clinical phase of drug development. IDB also designs and monitors Phase II and III clinical trials of biological response modifiers.

IDB is a branch within the National Cancer Institute (NCI). Figure 1 shows IDB's place within NCI's organizational structure.

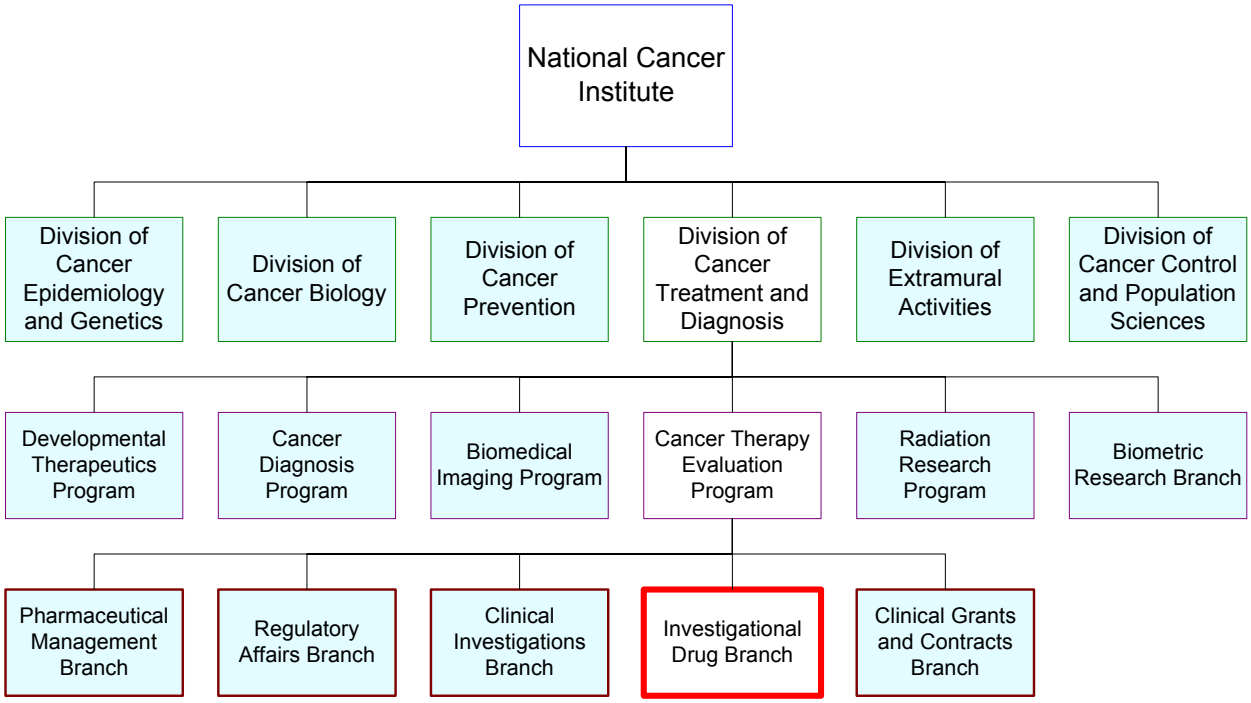

Figure 1: Investigational Drug Branch in NCI Organizational Structure

IDB is comprised of two sections: the Developmental Chemotherapy Section and the Biologics Evaluation Section. IDB Drug Monitors carry out the work in the two sections, with the assistance of Clinical Research Specialists. The Clinical Research Specialists are not IDB employees, but they work for IDB through a vendor contract currently held by Technical Resources International, Inc.

The Developmental Chemotherapy Section is responsible for:

- Developing drug development plans, including Phase I, Phase II and Phase III trials, for anti-cancer drugs
- Coordinating with both intramural and extramural investigators and pharmaceutical industry in the design and the conduct of anti-cancer drug trials
- Monitoring clinical trials of anti-cancer drugs for safety, efficacy, and clinical pharmacology
- Investigating and preparing reports concerning Adverse Drug Reactions s for all Investigational New Drug Applications

- Providing annual reports to FDA on Oncologic drugs

The Biologics Evaluation Section is responsible for:

- Developing drug development plans, including Phase I, Phase II and Phase III trials, for biological response modifiers
- Coordinating with both intramural and extramural investigators and pharmaceutical industry in the design and the conduct of biological response modifier trials
- Monitoring clinical trials of biological response modifiers for safety, efficacy, and clinical pharmacology
- Investigating and preparing reports concerning ADRs for all INDs
- Providing annual reports to FDA on Biological agents

There is a great deal of cross-work load between these two sections. Figure 2 depicts IDB's organizational structure.

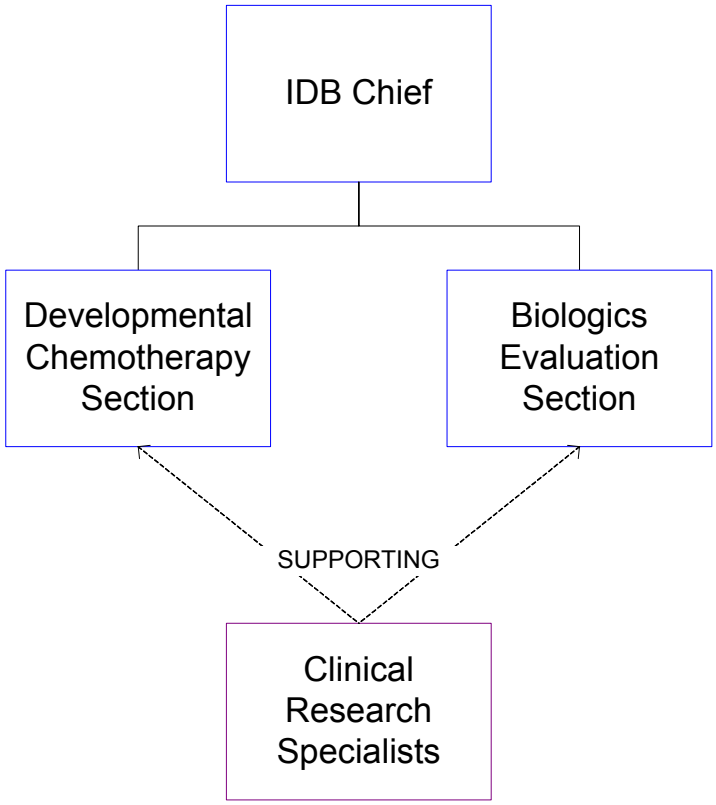

Figure 2: IDB Organizational Hierarchy

Business Actors

The term "business actors" is derived from Object Oriented analysis and refers to the individuals and groups primarily involved in set of high level business activities. For the purposes of this report, the business activities in question are the investigation and development of chemotherapeutic drugs in the Investigational Drug Branch.

The two business actors primarily involved in IDB drug development activities are the Drug Monitor and the Clinical Research Specialist.

Drug Monitor

An individual working in the Investigational Drug Branch who identifies promising new cancer therapy drugs and/or biologic agents and then plans, implements and monitors clinical trials to evaluate those drugs. Drug Monitors are physicians with practical experience in clinical cancer research. Also known as IDB Monitor or IDB Investigator.

Drug Monitor Task Hierarchy

1.0 Research New Drugs
- 1.1 Attend Conferences
- 1.2 Interact with other medical professionals
  - 1.2.1 Attend meetings at other cancer centers
  - 1.2.2 Maintain contact with academic investigators
  - 1.2.3 Maintain contact with drug companies
  - 1.2.4 Obtain new agent information from DTP
  - 1.2.5 Obtain new agent information from the Office of Alternative Medicine
- 1.3 Read medical Literature
- 1.4 Select Drugs that are Interesting
- 1.5 Obtain Detailed Drug Information
  - 1.5.1 Schedule meeting with Drug Company
  - 1.5.2 Attend meeting with Drug Company
  - 1.5.3 Obtain Investigator Brochure
  - 1.5.4 Obtain other pre-clinical data as needed
- 1.6 Check DTP databases for duplicate agents/trials
- 1.7 Examine Drug Data
  - 1.7.1 Review drug properties
  - 1.7.2 Review in vitro data
  - 1.7.3 Review in vivo data
  - 1.7.4 Review toxicology data
  - 1.7.5 Review pharmacokinetics

2.0 Create Drug Development Plan
- 2.1 Determine treatment regimens for Phase I, II, and III
- 2.2 Determine correlative studies
- 2.3 Write Drug Development Plan (DDP)

3.0 Submit DDP to Development Network (DN) for Approval
- 3.1 Finalize Drug Development Plan

3.2 Prepare drug presentation
3.3 Attend DN Meeting
4.0 Forward DDP and pre-clinical data to RAB for IND filing
5.0 Solicit Investigators for LOIs
5.1 Determine list of Investigators
5.1.1 Access Investigator Database
5.1.2 Select Investigators by area of expertise
5.1.3 Obtain compiled list of selected Investigators
5.2 Draft LOI Solicitation document
5.2.1 Use DDP as basis for LOI solicitation
5.3 Forward LOI solicitation to Investigators via WINFAX

Clinical Research Specialist

An individual providing expert technical support to a Drug Monitor. Clinical Research Specialists often hold advanced degrees in fields such as biology or chemistry and have practical experience in clinical cancer research. Clinical Research Specialists assist Drug Monitors by conducting research, reviewing materials, and preparing reports and presentations.

Clinical Research Specialist Task Hierarchy

1.0 Support IDB Drug Monitor
1.1 Read Medical Literature
1.2 Examine Drug Data for Drug Monitor
1.2.1 Review drug properties
1.2.2 Review in vitro data
1.2.3 Review in vivo data
1.2.4 Review toxicology data
1.2.5 Review pharmacokinetics
1.2.6 Report findings to Drug Monitor
1.3 Assist Drug Monitor in Creating Drug Development Plan
1.3.1 Draft treatment regimens for Phase I, II and III
1.3.2 Identify possible correlative studies
1.3.3 Draft Drug Development Plan for Drug Monitor
1.4 Monitor Clinical Trial Progress
1.4.1 Review quarterly reports
1.4.2 Identify lagging studies
1.4.3 Request information from principal investigators
1.4.4 Keep Drug Monitor informed of clinical trial progress
1.5 Prepare Reports for Drug Monitor
1.5.1 Work with Drug Monitor to define reporting needs
1.5.2 Gather information for reports
1.5.3 Prepare reports, charts, and presentations
2.0 Improve Skills
2.1 Attend Conferences
2.2 Attend Training

Future Knowledge Acquisition

In order to build an object-oriented model for IDB Drug Development, next steps include drafting Business Use Cases and a Business Object Model. Domain experts should validate the information in this report, the Use Cases and the Object Model to ensure that the domain is represented accurately. Therefore, knowledge acquisition sessions should be held with representatives of selected business actor groups. Likely domain experts would include:

- Drug Monitors
- Clinical Research Specialists
- IDB Chief